

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A method of designing a routing element, wherein the routing element connects a plurality of components in a system, the method comprising:
  - establishing a system design including the plurality of components;
  - generating a diagram associated with the system design, wherein the diagram indicates connections of the plurality of components in the system;
  - establishing guidelines for designing the routing element based on physical constraints of the routing element, the guidelines including recommendations for designing the routing element; and
  - automatically designing a routing pattern for the routing element based on the diagram and the guidelines.
2. (Previously presented) The method of claim 1, wherein the routing element includes one or more connecting elements and wherein designing the routing element includes:
  - determining one or more sets of one or more connecting elements that can be bundled; and
  - determining a layout for each bundle within the routing element.
3. (Previously presented) The method of claim 1, further including:

receiving one or more revised guidelines for designing the routing element; and

determining a revised design for the routing element based on the diagram and the revised guidelines.

4. (Previously presented) The method of claim 1, further including:  
providing a drawing illustrating the system and a design for the routing element.
5. (Previously presented) The method of claim 1, wherein establishing guidelines includes:  
accessing guidelines associated with the system design.
6. (Previously presented) The method of claim 1, wherein establishing guidelines includes:  
accessing guidelines associated with the plurality of components or the routing element.
7. (Previously presented) The method of claim 1, further including:  
automatically providing information about the system design.
8. (Previously presented) The method of claim 7, wherein automatically providing information includes:  
providing at least one of: a three-dimensional drawing of the system; a two-dimensional drawing of the system; a list of components; and a

bill of materials associated with at least one of the system, the routing element, and the components.

9. (Previously presented) The method of claim 1, wherein the routing element includes a harness.
10. (Currently amended) A computer-readable medium including instructions for performing a method, which when executed by a processor designs a structure for routing a plurality of elements for connecting components, the method comprising the steps of:
  - establishing a system design including a plurality of components;
  - generating a diagram associated with the system design, wherein the diagram includes the plurality of elements and the plurality of components;
  - accessing guidelines for designing the structure, the guidelines being based on physical constraints of the plurality of elements and including recommendations for routing the elements in the structure; and
  - automatically determining routing patterns in the structure for the plurality of elements based on the diagram and the guidelines.
11. (Original) The computer-readable medium of claim 10, wherein the step of determining routing patterns includes the steps of:
  - determining one or more sets of one or more elements that can be bundled; and
  - determining a routing pattern in the structure for each bundle.

12. (Previously presented) The computer-readable medium of claim 10, further including the steps of:
  - receiving one or more revised guidelines for designing the structure; and
  - determining a revised routing pattern in the structure for the plurality of elements based on the diagram and the revised guidelines.
13. (Original) The computer-readable medium of claim 10, further including:
  - providing a schematic illustrating the structure and the determined routing patterns.
14. (Original) The computer-readable medium of claim 10, wherein the step of accessing guidelines for designing the structure includes the step of:
  - accessing standards associated with the system design.
15. (Original) The computer-readable medium of claim 10, wherein the step of accessing guidelines for designing the structure includes the step of:
  - accessing standards associated with the plurality of elements.
16. (Original) The computer-readable medium of claim 10, further including the step of:
  - automatically providing information about the designed structure.

17. (Previously presented) The computer-readable medium of claim 10, wherein the step of automatically providing information includes the step of:
  - providing at least one of: a three-dimensional drawing of the structure;
  - a two-dimensional drawing of the structure;
  - a list of elements and components; and
  - a bill of materials.
18. (Original) The computer-readable medium of claim 10, wherein the structure includes a harness and the elements include wires.
19. (Currently amended) A tool for designing a routing element, wherein the routing element connects a plurality of components in a system via connecting elements, the tool comprising:
  - a processor; and
  - a computer-readable memory, wherein the memory includes:
    - a computer-aided design module that, when executed by the processor, establishes a system design and generates a diagram associated with the system design, wherein the diagram indicates connections of the plurality of components in the system; and
    - a design module that, when executed by the processor, designs a routing pattern for the routing element based on one or more guidelines, the guidelines being based on physical constraints of the routing element and including at least one recommendation for routing the connecting elements in the system, and automatically determines routing patterns in the

system for the element based on the diagram and the guidelines.

20. (Previously presented) The tool of claim 19, wherein the design module is software designed to work with the computer-aided design module.
21. (Currently amended) A tool for designing a routing element, wherein the routing element connects a plurality of components in a system, the tool comprising:
  - a routing design module embodied in computer-readable memory configured to perform the following steps:
    - establishing a system design including the plurality of components;
    - generating a diagram associated with the system design, wherein the diagram indicates connections of the plurality of components in the system;
    - establishing guidelines for designing the routing element based on physical constraints of the routing element, the guidelines including at least one recommendation for designing the routing the element; and
    - automatically designing a pattern for the routing element based on the diagram and the guidelines.
22. (Currently amended) A method of routing an element ~~among~~ to connect a plurality of components in a system, the method comprising:
  - establishing the plurality of components to be connected;

establishing routing guidelines based on physical constraints of the element and including at least one recommendation for routing the element in the system; and

automatically determining a routing pattern for of the element to connect the plurality of components based on the routing guidelines.

23. (Previously presented) The method of claim 1, wherein the routing element includes one or more connecting elements and wherein establishing guidelines for designing the element includes establishing recommendations for routing the connecting elements through the system.
24. (Previously presented) The method of claim 1, wherein establishing guidelines for designing the routing element includes establishing the guidelines by prompting a user to answer one or more questions.
25. (Previously presented) The tool of claim 21, wherein establishing guidelines for designing the routing element includes accessing the guidelines from a centralized location.
26. (Previously presented) The tool of claim 21, wherein the routing element includes one or more connecting elements and wherein the routing design module is configured to establish guidelines for designing the routing element that include recommendations for routing the connecting elements in the system based on information reflecting attributes of at least one of the system, the connecting elements, and the components.

27. (Currently amended) A method for designing a routing element that connects a plurality of components in a system, the method comprising:
- establishing a list of components and connections among the components;
  - generating a diagram of the system based on the list, the diagram illustrating the components and the connections;
  - establishing guidelines for designing the routing element based on physical constraints of the routing element, the guidelines including information reflecting a geometry of the system; and
  - automatically designing a routing pattern for the routing element based on the diagram and the guidelines.
28. (Cancelled)